

Nutritional management of equine sabulous urolithiasis: a case report

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Introduction: Dietary recommendations on different types of urolithiasis are nowadays routinely made in small animal practice. The prevalence of urolithiasis is however less common in equids, despite the fact that horses excrete much greater amounts of calcium crystals in the urine (Dusterdieck-Zellmer, 2007). Since nearly all uroliths in horses consist of calcium carbonate (Osborne et al., 2008), the nutritional management of urolithiasis is fortunately more straightforward than for dogs or cats. However, there have been very few successful attempts at dietary dissolution in equine practice. Sabulous urolithiasis, in contrast to regular firm cystoliths, consist of an accumulation of sand-like urine sediment in the ventral aspect of the bladder which can usually be dented with firm digital pressure. This condition is associated with compromised bladder emptying in horses (Schott, 2013).

Case history: A feeding advice was requested at the Department of Nutrition of Ghent University for a 16 year old warmblood mare with intermittent complaints of dermatitis due to urine soiled hindquarters. Additionally, the owner noticed urinary sediment with small blood clots in the stable on a regular basis. These problems presented solely during winter, when pasture turnout was no longer possible and therefore water intake was lower. A diagnosis of recurrent sabulous cystitis due to calcium carbonate calculi was made by the referring veterinarian. Previous treatments with antibiotics, NSAIDs and repeated rinsing of the bladder only provided temporary relief. The horse weighed 499 kg, had a body condition score of 5/9 and was currently not performing any exercise. The current ration consisted of 15 kg of hay (estimation made by owner), 180 grams Lexa balancer feed® and 490 grams of Subli mash®.

Discussion: The principles of nutritional management of urolithiasis in horses include (1) reducing urolith composition constituents in the diet, (2) acidifying the urine to disfavor crystal formation and (3) stimulating water consumption to increase urine production (Kienzle, 1991; Remillard, 1992; Schott, 2013). Since the horse in this case suffered from calcium carbonate uroliths, the ration calcium content was decreased in order to reduce dietary intake of calcium. The prescribed daily ration contained 37 grams of calcium, which is somewhat higher than the NRC requirement (2007), but significantly lower than the calcium content of the previous ration (64 grams). To further decrease calcium absorption by means of phytin, 100 grams of wheat bran were added. Unfortunately, there are up to date no controlled studies on the effect on calcium absorption nor recommendations on the amount of phytin required in horses to the best of the author's knowledge. In order to stimulate water intake, the horse was placed on a diet consisting of 9 kg haylage (60%DM), 200 grams of beet pulp pellets with at least 1 liter water added and 245 grams of bran based Subli mash®. To reach maintenance energy requirements, 50 ml of corn oil was added to the diet. Water and a salt lick were provided ad libitum. 65 grams of Cavalor Nutri Plus®, a vitamin and mineral supplement was added to meet NRC nutrient requirements (2007).

Follow-up: As quick as day one after the diet change, the owner saw significant improvement. This rapid effect could possibly be explained by an additional change in environment which reduced stress since the horse was housed separately at this time in order to ensure precise dietary intake. Although never studied in horses, a stress component has been reported in urolith formation in humans (Walters, 1986) and in development of idiopathic cystitis in cats (Cameron et al., 2004). In the first month after the diet change, the owner only noticed urinary sediment with small blood clots on four occasions, where before treatment, this was seen daily. At the time of writing this abstract, four months after a feeding advice was requested, the owner confirms the horse remains doing well on this diet while maintaining optimal body condition score.

References: available upon request